

Application No. 09/992,637

UNMI 1000-1

In the Specification:

Please replace paragraph [0003] with the following amended paragraph:

[0003] This traditional architecture arose because the cost of the manufacture and design of logic has been historically higher than the cost of moving data into the logic system. However, ~~recently~~ recent advances in manufacturing and design are bringing down the cost of the design and implementation of logic, as compared to the cost of routing signals.

Please replace paragraph [0010] with the following amended paragraph:

[0010] The present invention also provides a new method of processing data in a data processing engine that includes a plurality of functional units. The method includes providing a set of control words that specify a route among the plurality of functional units, and routing data among the plurality of functional units according to the set of software control words to produce a result. Also, in some embodiments, the method includes compiling the set of software control words from a high-level programming language specifying the result.

Please replace paragraph [0016] with the following amended paragraph:

[0016] Fig. 4 is a simplified architectural diagram of a data processing system showing other variations on the architecture of the present invention.

Please replace paragraph [0018] with the following amended paragraph:

[0018] A detailed description of embodiments of the present invention is provided with respect to Figs. 1 through 5. In Fig. 1, the data processing system according to the present invention includes a plurality of functional units 10-16, and a plurality of routing units 20-23. The routing units are controlled by respective control signals 30-33 from control word logic 35. The control signals combined ~~defined~~ define a software control word by which a data path is defined through the plurality of functional units 10-16.

Application No. 09/992,637

UNMI 1000-1

Please replace paragraph [0021] with the following amended paragraph:

[0021] The routing units 20-23 are made up of typical routing circuitry, including multiplexers, buses, crossbar switches, local area network switches, and the like. Also, routing units 20-23 comprise special purpose routing units in some embodiments.

Please replace paragraph [0024] with the following amended paragraph:

[0024] The control word 55 includes control signals $Rc[7:0]$ which operate as strobes for the registers, $M1[2:0]$ which controls multiplexer 51, $M2[2:0]$ which controls multiplexer 52, $Ac[1:0]$ which selects one of four results available as output from the arithmetic logic unit $ALU1$, $M3[0]$ which controls multiplexer 53, wr which operates as a write strobe for the memory 50, $Addr[9:0]$ which provides an address to the memory 50, and $M4[0]$ which controls multiplexer 54. Control word logic applies the control word 55 to the plurality of routing units ~~[[in]]~~ synchronously ~~manner~~ so that timing constraints of the plurality of dedicated functional units are observed.

Please replace paragraph [0026] with the following amended paragraph:

[0026] Thus, the data is steered through the resources using a sequence of control words provided by the control word logic 55 acting as distribution circuitry. The control words each provide the control signals that specify the source and destination for data being routed by the routing units 51-54, ~~[[and]]~~ the associated routing functions in the registers, and a memory 50. In the preferred systems, there are no operation commands ~~the effect~~ that affect the function performed on the data ~~lives of~~ by the functional units. Rather, the function performed on the data is hardwired in, or otherwise provided in, the dedicated functional units.

Please replace paragraph [0031] with the following amended paragraph:

[0031] As the complexity of data processing systems implemented according to the present architecture increases, hierarchical designs are available. Thus, any of the functional units in an architecture, such as ~~[[the]]~~ that shown in Fig. 1, may comprise its own data

Application No. 09/992,637

UNMI 1000-1

processing system having a plurality of functional units and routing units operating according to its own control word logic.

Please replace paragraph [0033] with the following amended paragraph:

[0033] Accordingly, the present ~~intention~~ invention provides an architecture based upon a new paradigm for design and implementation of data processing systems. Control words are generated by compiling high level programming language, and consist of control signals for routing units. The control signals synchronously steer data among a plurality of functional units which are optimized for particular functions. No decoding of operation commands is required, vastly simplifying implementation and design of the hardware engine.